

Remarks

Applicant appreciates the indication that claims 1-33 and 47-68 are allowed and the indication that claims 35-37 and 40 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 41-44 and 46 stand withdrawn as being drawn to a non-elected invention.

Claims 34, 38, 39 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bramstedt et al., U.S. 4,842,498, in view of Fritsch, U.S. 4,430,048. The Office Action alleges: "Bramstedt et al. disclose a diaphragm pump having a housing which consists of four components 22, 40, 49 and 50 which form an interior chamber 56, pressure and vacuum ports 51 and 52 having lengthwise-extending axes that are perpendicular to the first axis, and interior fluid communication channels. However, Bramstedt et al. do not disclose a housing which 'consists' of first and second housing components." Office Action, p. 2. To support the Section 103 rejection, the Office Action alleges: "Fritsch discloses a diaphragm pump having a housing which consists of first and second housing components 1 and 2 and which form an interior chamber 8, pressure and vacuum ports having lengthwise-extending axes that are perpendicular to the first axis, and interior fluid communications 13 and 14. Forming the housing of only two components simplifies the structure and the assembly thereof as compared to the structure of Bramstedt et al. In view of this teaching, it would have been obvious to form elements 40, 49 and 50 of Bramstedt et al. as a unitary homogenous structure so that the

housing consists of two components.” Applicant respectfully traverses the rejection of claims 34, 38, 39 and 45.

Claims 34, 38, 39 and 45 are not obvious over Bramstedt et al. in view of Fritsch because none of the references teaches, discloses, or suggests a diaphragm pump that can be assembled by hand. The preamble of independent claims 34 and 45 recites, “A diaphragm pump that can be assembled by hand.” The term “hand assembled” is defined in the specification as “capable of being assembled by hand without the use of tools of any kind.” In contrast with applicant’s hand assembled diaphragm pump, the pumps disclosed by Bramstedt and Fritsch require tools for assembly. For example, the compressor of Bramstedt includes a diaphragm assembly 11, a diaphragm support assembly 12, and a power source 13, which includes a bearing bracket assembly 15, which may be mounted with any suitable fasteners received in threaded holes 16. Bramstedt et al., col. 2, lines 26-32. The head plate assembly 32 of Bramstedt’s device is secured to the housing 22 by *head connectors 55*, which comprise Allen screws. Bramstedt et al., col. 3, lines 32-34. The diaphragm support assembly 12 includes a housing 22 which is secured by stator screws 23, 24 to the power source. Bramstedt et al., col. 2, lines 44-46. Similarly, the cylinder cover 1 of Fritsch’s device is releasably attached to the end face of the cylinder body 2 by means of *bolts 7*. In another embodiment, the diaphragm of Fritsch’s device has its clamping surface 26 fixed to the end face of the cylinder cover 1 by a separate locking ring 32 by means of *bolts 33*. While such head connectors 55, bolts 7, and bolts 33 may be *partially* installed by hand,

the connectors and bolts must be tightened with a tool. Therefore, neither Bramstedt nor Fritsch teach, disclose or suggest “a diaphragm pump that can be hand assembled” as recited in independent claims 34 and 45.

Additionally, Fritsch does not disclose “a housing consisting of first and second housing components that form . . . *exterior* pressure and vacuum ports having lengthwise-extending axes that are perpendicular to said first axis” as recited in claim 34. As indicated by different cross-hatching, the exterior ports of Fritsch’s device are formed from separate, additional components. For example, referring to Fig. 1, the inlet passage 13 and outlet passage 14 connect with valves 11 and 12, which are connected to separately-formed, (unnumbered) external ports. The exterior intake and output ports are not integrally formed with the cylinder cover. While the cover may have integrally-formed *internal* fluid communication channels, the *exterior* pressure and vacuum ports are formed from separate components. Accordingly, Fritsch’s diaphragm pump housing comprises at least four components, not two components as recited claims 34 and 45. Therefore, claims 34 and 45 are not anticipated by or obvious in view of the references cited in the Office Action.

Claims 36-40 are dependent on claim 34 and are believed to be patentable for the same reasons as discussed above with respect to claim 34.

In view of the aforementioned remarks, applicant believes the claims are in condition for allowance. An early action on the merits is earnestly solicited.

Respectfully submitted,

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